

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for synchronizing a base station to a mobile station, comprising:

transmitting a signal sequence $K(i)$ of length n from the base station to the mobile station in a synchronization channel, the mobile station using the signal sequence $K(i)$ to determine a timing of the base station, the signal sequence $K(i)$ being obtainable by:

repeating, n_1 times, a second signal sequence element $K_2(k)$ of length n_2

to form a second signal sequence, the second signal sequence being modulated

with first signal sequence elements $K_1(j)$ of length n_1 ;

wherein n_1 is equal to n_2 , and i, j and k are integers; and

achieving timeslot synchronization between the base station and the mobile station using the synchronization channel.

2. (Previously Presented) The method of claim 1, wherein n is equal to 256, n_1 is equal to 16, and n_2 is equal to 16.

3. (Previously Presented) The method of claim 1, further comprising forming the signal sequence $K(i)$ by modulating the second signal sequence as follows: $K(i) = K_2(i \bmod n_2) * K_1(i \div n_2)$.

4. (Currently Amended) The method of claim 1, further comprising:
receiving, at the mobile station, a received signal sequence $E(1)$, the signal sequence $K(i)$ being contained in the received signal sequence $E(1)$, the signal sequence $K(i)$ being determined in the mobile station by obtaining a correlation sum S of the signal sequence $K(i)$ with ~~corresponding~~ using sections of the received signal sequence $E(1)$;

wherein the mobile station determines the correlation sum S by:

determining a partial correlation sum sequence $TS(z)$ of the second signal sequence using corresponding parts of the received signal sequence $E(1)$;

selecting n_1 elements of the partial correlation sum sequence $TS(z)$; and

multiplying selected elements of the partial correlation sum sequence $TS(z)$ by first signal sequence elements $K_1(j)$.

5. (Previously Presented) The method of claim 4, wherein selecting the n_1 elements comprises selecting n_1 in each of n_2 -th elements of the partial correlation sum sequence $TS(z)$.

6. (Currently Amended) The method of claim 9, further comprising:

receiving, at the mobile station, a received signal sequence $E(1)$, the signal sequence $K(i)$ being contained in the received signal sequence $E(1)$, the signal sequence $K(i)$ being determined in the mobile station by obtaining a correlation sums S of the signal sequence $K(i)$ with ~~corresponding~~ using sections of the received signal sequence $E(1)[[.]]$;

wherein the mobile station determines the correlation sum S by:

determining a partial correlation sum sequence $TS(z)$ for first signal sequence elements $K1(j)$ using selected elements of the received signal sequence $E(1)$; and

multiplying $n2$ elements of the partial correlation sum sequence $TS(z)$ by second signal sequence elements $K2(k)$.

7. (Previously Presented) The method of claim 6, further comprising selecting $n1$ in each of $n2$ -th elements of the received signal sequence $E(1)$ in order to calculate a partial correlation sum TS .

8. (Previously Presented) The method of claim 9, further comprising:

storing partial correlation sums TS in the mobile station; and

using the partial correlation sums in order to determine a further correlation sum S .

9. (Previously Presented) The method of claim 1, further comprising:

determining, in the mobile station, the signal sequence $K(i)$ using information about the first signal sequence element $K1(j)$ and the second signal sequence element $K2(k)$.

10. (Currently Amended) A base station comprising:
a transmitter to transmit a signal sequence $K(i)$ of length n from the base station to a
mobile station in a synchronization channel; and ~~for transmitting a synchronization sequence to~~
~~synchronize the base station and a mobile station, the synchronization sequence obtainable by:~~
a processing device to obtain the signal sequence $K(i)$ by repeating, n_1 times, a second
signal sequence element $K_2(k)$ of length n_2 , the second signal sequence element $K_2(k)$ being
modulated with a first signal sequence element $K_1(j)$ of length n_1 , where n_1 and n_2 are equal,
and j and k are integers;
wherein timeslot synchronization is achieved between the base station and a mobile
station using the synchronization channel.

11. (Currently Amended) A mobile station comprising:
a transmitter to transmit a signal sequence $K(i)$ of length n from the mobile station to a
base station in a synchronization channel; and ~~that uses a synchronization sequence for~~
~~synchronizing a base station and the mobile station, the synchronization sequence obtainable by:~~
a processing device to obtain the signal sequence $K(i)$ by repeating, n_1 times, a second
signal sequence element $K_2(k)$ of length n_2 , the second signal sequence element $K_2(k)$ being
modulated with a first signal sequence element $K_1(j)$ of length n_1 , where n_1 and n_2 are equal,
and j and k are integers;

wherein timeslot synchronization is achieved between the base station and a mobile station using the synchronization channel.

12. (Currently Amended) A signal sequence $K(i)$ of length n , the signal sequence being stored in an information carrier, the signal sequence $K(i)$ being obtainable by:

repeating, n_1 times, a second sequence element $K_2(k)$ of length n_2 ; and

modulating a first sequence element $K_1(j)$ of length n_1 into repeated second sequence elements $K_2(k)$;

wherein n_1 is equal to n_2 , and i , j and k are integers;

wherein the signal sequence $K(i)$ is usable by a mobile station to determine a timing of the base station; and

wherein timeslot synchronization is achievable between the base station and the mobile station using the signal sequence $K(i)$ transmitted over a synchronization channel.